MUSSEL FORK CREEK
WBID 674

Recreational Use Attainability Analysis

May 2007

PREPARED FOR:
RFP No: B3Z07134
Water Quality Monitoring & Assessment Section
Water Protection Program
Division of Environmental Quality
MISSOURI DEPARTMENT OF NATURAL RESOURCES
P O Box 176
Jefferson City, MO 65102

PREPARED BY:
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Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad):	Mussel Fork Creek
Missouri Water Body Identification (WBID) Number:	674
8-digit HUC: 10280202	County: Sullivan/Adair/Macon
Upstream Legal Description (from Table H):	2, 62N, 18W
Downstream Legal Description(from Table H):	18, 58N, 17W
Number of sites evaluated	17
List all sites numbers, listed consequantly upstream to downstream:	Sites 1 → 18 (no site 11) - no access to site 11 available - DC

II. Subsegmentation (fill this section out only in cases where subsegmentation is being proposed)

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Upstream Coordinates: UTM X Y		Downstream Coordinates: UTM X Y	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE		
GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± _____ Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

III. Discharger Facility Information (list all permitted dischargers on the stream)

Discharger Facility Name(s):	Green City WWTF
Discharger Permit Number(s):	MO 0112135

IV. UAA Surveyor (please print legibly)

Name of Surveyor: JENNY HRABIK	Telephone Number: (573) 443-4100
Organization/Employer: MEC Water Resources/AESolutions	
Position: Field Tech.	

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Signed: Jenny Hrabik **Date:** 23 MAY 2007

DAC 5-24-07

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad): Mussel Fork Creek
Missouri Water Body Identification (WBID) Number: 0674
8-digit HUC: 10280202 County: Sullivan
Upstream Legal Description (from Table H): 2, 62N, 18W
Downstream Legal Description(from Table H): 18, 58N, 17W
Number of sites evaluated: 17
List all sites numbers, listed consecutively upstream to downstream: 1,2,3,4,5,6,7,8,9,10,12,13,14,15,16,17,18 No site 11

II. Subsegmentation (fill this section out only in cases where subsegmentation is being proposed)

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Upstream Coordinates: UTM X Y		Downstream Coordinates: UTM X Y	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± _____ Feet or ± _____ Meters		
PDOP		± _____ Feet or ± _____ Meters	

III. Discharger Facility Information (list all permitted dischargers on the stream)

Discharger Facility Name(s): Green City WWTP
Discharger Permit Number(s): MO 0112135

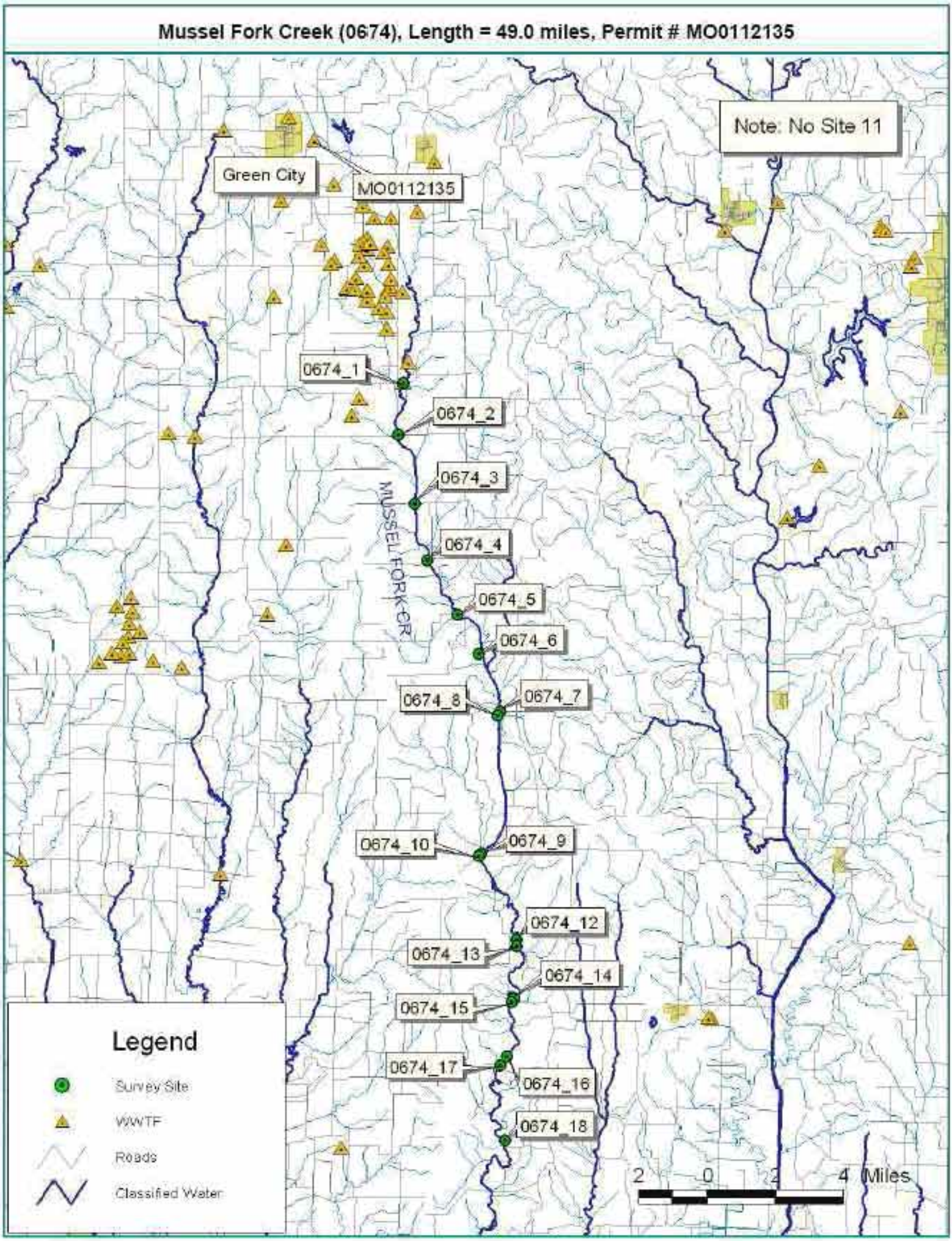
IV. UAA Surveyor (please print legibly)

Name of Surveyor	David Carani	Telephone Number: 573-443-4100
Organization/Employer: MEC Water Resources, Inc.		
Position: Res. Tech.		

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Signed: _____ **Date:** 5/23/07

AHC 5-24-07


Mussel Fork Creek (0674), Length = 49.0 miles, Permit # MO0112135
Note: No Site 11
Green City
MO0112135
0674_1
0674_2
0674_3
0674_4
0674_5
0674_6
0674_7
0674_8
0674_9
0674_10
0674_12
0674_13
0674_14
0674_15
0674_16
0674_17
0674_18
MUSSEL FORK CR
Legend
Survey Site
WWTF
Roads
Classified Water
2 0 2 4 Miles

WBID# 674
Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 22MAY2007 1430	Site Location Description (e.g., road crossing): Downstream of Hwy H Bridge
Personnel (Data Collectors): JRH + TAH	
Current Weather Conditions: overcast windy 75°F	Facility Name: Green City WWTF
	Permit Number: MO 0112135
Weather Conditions for Past 10 days: 1.3" rain	
Drought Conditions?: No drought ☐; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☒	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 15T 0509339 Y: 4445596

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 18 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
674_1_	1032 upstream	674_1_ 1036	PWSD Flags & pipe (T3)
674_1_	1033 downstream	674_1_ 1037	Fence at T3
674_1_	1034 Slope (downstream of bridge, Rt bank)		
674_1_	1035 Bridge (Hwy H)		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☒ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:
pic# 674_1_ 1034 (slope) #674_1_ 1037 fence at T3

WBID# 674
Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☒ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments: pic# 674_1_1035 (Bridge) pic# 674_1_1036 (T3) PWSD Flags + pipe

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
	1	9	20	70	

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: Brown (pools)
BOTTOM DEPOSIT:	☒ Sludge	☒ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☒ Scum ①	☐ Foam	☐ None	☐ Other:

Comments: Please attach any additional comments to this form. ① T1 through T4

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jenny Hrabik Date of Survey: 22 MAY 2007

Organization: AES/MFG Water Position: Field Tech

February 16, 2007 Rec'd 5-24-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 674 Site #: 674_1 (WBID_Site#)

Estimated Channel Incision: 4 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0509339 UTM Y: 4445596

Horizontal Accuracy Estimate (GPS Data Quality): +/- 18 (feet)

Average Stream Width: 5.9 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: JRH & TAH

Dissolved Oxygen

Date: 22 MAY 2007 Time: ~~1430~~ 08:13

① 23

Dissolved Oxygen: 8.34 (mg/L)

Dissolved Oxygen: 88.4 (% sat)

Specific Cond: 320.2 (µS/cm)

Water Temperature: ~~22.0~~ (°C) 19.3°C

① changed DO membrane on 22 MAY evening. returned to site on 23 MAY AM.

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.3	0.1	0.1	0.1	0.2	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.6	0.1	0.1	0.1	0.1	0.1	2.7	0.1	0.1	0.1
2	0.7	0.1	0.6	0.1	0.7	0.3	0.9	0.2	0.9	0.3	0.9	0.4	1.1	0.1	0.6	0.1	0.5	0.1	2.9	0.1	0.5	0.2
3	1.1	0.2	1.1	0.1	1.2	0.3	1.3	0.2	1.7	0.5	1.7	0.4	1.6	0.1	1.1	0.3	0.9	0.2	3.1	0.1	0.9	0.2
4	1.5	0.1	1.6	0.2	1.7	0.2	1.7	0.3	2.5	0.6	2.5	0.5	2.1	0.2	1.6	0.4	1.3	0.2	3.3	0.1	1.3	0.3
5	1.9	0.2	2.1	0.2	2.2	0.3	2.1	0.4	3.3	0.6	3.3	0.5	2.6	0.2	2.1	0.4	1.7	0.3	3.5		1.7	0.2
6	2.3	0.1	2.6	0.3	2.7	0.2	2.5	0.4	4.1	0.7	4.1	0.5	3.1	0.3	2.6	0.3	2.1	0.3	3.7		2.1	0.2
7	2.7	0.1	3.1	0.2	3.2	0.2	2.9	0.4	4.9	0.7	4.9	0.2	3.6	0.4	3.1	0.3	2.5	0.3	3.9		2.5	0.2
8	3.1	0.1	3.6	0.2	3.7	0.2	3.3	0.3	5.7	0.9	5.7	0.2	4.1	0.3	3.6	0.2	2.9	0.2	4.1		2.9	0.2
9	3.5	0.2	4.1	0.3	4.2	0.3	3.7	0.2	6.5	0.7	6.5	0.3	4.6	0.3	4.1	0.2	3.3	0.2	4.3		3.3	0.2
10	3.9	0.2	4.6	0.2	4.7	0.2	4.1	0.1	7.3	0.3	7.3	0.3	5.1	0.3	4.6	0.1	3.7	0.1	4.5		3.7	0.1
11	4.3	0.1	5.1	0.1	5.2	0.1	4.5	0.1	8.1	0.1	8.1	0.1	5.6	0.1	5.1	0.1	4.1	0.1	4.7		4.1	0.1
12	5.1	0	5.3	0	5.9	0	4.6	0	8.2	0	8.4	0	5.8	0	5.4	0	5.3	0	5.7	0	4.8	0
Feature Type (riffle, run, or pool)	pool		pool		pool		pool		pool		pool		pool		pool		pool		pool		pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Jenny Hrabik Date: 22 MAY 2007

RMC 5-24-07

WBID# 674
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 22 MAY 2007 1535	Site Location Description (e.g., road crossing): Downstream of Sulton Rd. Crossing
Personnel (Data Collectors): JRH & TAH	Facility Name: Green City WWTF
Current Weather Conditions: overcast 75°F	Permit Number: MO 0112135
Weather Conditions for Past 10 days: 1.3" rain	
Drought Conditions?: No drought ☐; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☒	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 15T 0509112 Y: 4443158

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 17 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
674_2_1038	upstream	674_2_1041	Slope (left bank)
674_2_1039	downstream		
674_2_1040	Bridge (Sulton Rd)		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments: pic# 674_2_1041

WBID# 674
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: pic# 674_2-1042					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	60 % Sand	% Silt	40 % Mud/Clay	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<1% of site had aquatic vegetation

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☒ Scum (1)	☐ Foam	☐ None	☐ Other:

Comments: Please attach any additional comments to this form. (1) in between T1 & T2 in backwater

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jenny Drabik Date of Survey: 22 MAY 2007

Organization: AES/MEC Water Position: Field Tech.

DMC 5-25-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 674 Site #: 674_2 (WBID_Site#)

Estimated Channel Incision: 4 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0509112 UTM Y: 4443158

Horizontal Accuracy Estimate (GPS Data Quality): +/- 17 (feet)

Average Stream Width: 6.2 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: JRH + TAH

Dissolved Oxygen

Date: 22MAY2007 Time: 1535 (ID 23) 08.26

Dissolved Oxygen: 8.6 (mg/L)

Dissolved Oxygen: 93.3 (% sat)

Specific Cond: 310.0 (µS/cm)

Water Temperature: 19.5 (°C)

① changed DO membrane on 22MAY PM returned to site on 23MAY AM.

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 Depth (m)
1	0	0.1	0	0.2	0.9	0.1	0.6	0.1	0.7	0.1	0	0.1	0.4	0.1	0.3	0.1	0.4	0.1	1.2	0.1	0.3	0.1
2	0.4	0.3	0.4	0.4	1.1	|	0.7	|	0.9	0.1	0.2	0.3	0.7	0.1	1.1	0.2	1.1	0.1	1.5	0.1	1.0	0.2
3	0.8	0.4	0.8	0.4	1.3	|	0.8	|	1.1	0.1	0.4	0.3	1.0	0.2	1.9	0.2	1.8	0.1	1.8	0.1	1.7	0.2
4	1.2	0.4	1.2	0.4	1.5	|	0.9	|	1.3	<0.1	0.6	0.2	1.3	0.1	2.7	0.2	2.5	0.3	2.1	0.2	2.4	0.2
5	1.6	0.3	1.6	0.3	1.7	|	1.0	|	1.5	<0.1	0.8	0.1	1.6	<0.1	3.5	0.4	3.2	0.4	2.4	0.2	3.1	0.2
6	2.0	0.3	2.0	0.3	1.9	|	1.1	|	1.7	0.1	1.0	|	1.9	0.1	4.3	0.5	3.9	0.6	2.7	0.2	3.8	0.1
7	2.4	0.3	2.4	0.2	2.1	|	1.2	|	1.9	|	1.2	|	2.2	0.2	5.1	0.5	4.6	0.6	3.0	0.2	4.5	0.1
8	2.8	0.3	2.8	0.2	2.3	|	1.3	|	2.1	|	1.4	|	2.5	0.1	5.9	0.4	5.3	0.6	3.3	0.1	5.2	0.1
9	3.2	0.2	3.2	0.2	2.5	|	1.4	|	2.3	|	1.6	|	2.8	0.1	6.7	0.3	6.0	0.4	3.6	<0.1	5.9	0.1
10	3.6	0.2	3.6	0.1	2.7	|	1.5	|	2.5	|	1.8	|	3.1	0.1	7.5	0.2	6.7	0.2	3.9	0.1	6.6	0.2
11	4.0	0.1	4.0	0.1	2.9	0.1	1.6	|	2.7	|	2.0	|	3.4	0.1	8.3	0.1	7.4	0.1	4.2	0.1	7.3	0.1
12	5.4	0	4.5	0	6.1	0	6.2	0	6.0	0	4.8	0	4.1	0	8.7	0	8.2	0	6.0	0	8.2	0
Feature Type (riffle, run, or pool)	pool		pool		pool		run		run		run		run		pool		pool		run		pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient), Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [signature] Date: 22MAY2007

Rec'd 5-24-07

WBID# 674
Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 23 MAY 2007 0845	Site Location Description (e.g., road crossing): Downstream of Talent Rd. crossing
Personnel (Data Collectors): JRH + TAH	
Current Weather Conditions: overcast, 65°F	Facility Name: Green City WWTF
	Permit Number: MO 0112135
Weather Conditions for Past 10 days: 1.3" rain	
Drought Conditions?: No drought ☐; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☒	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0509868 Y: 4439913 (15T)

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 17 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
674-3-1043	UPSTREAM	674-3-1046	SLOPE, DOWNSTREAM, RT. BANK
674-3-1044	DOWNSTREAM		
674-3-1045	BRIDGE, TALENT RD		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments: PICT: 674-3-1046

WBID# 674
Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☒ Other: TIRES
Comments: pic# 674_3-1045					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
5		95			

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☒ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jenny Hobbs Date of Survey: 23 MAY 2007

Organization: AES/MEC Water Position: Field Tech

February 16, 2007

NAC 5-25-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 674 Site #: 674_3 (WBID_Site#)

Estimated Channel Incision: 4 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0509868 UTM Y: 4439913

Horizontal Accuracy Estimate (GPS Data Quality): +/- 17 (feet)

Average Stream Width: 5.9 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: JRH + TAH

Dissolved Oxygen

Date: 23 MAY 2007 Time: 08:45

Dissolved Oxygen: 7.96 (mg/L)

Dissolved Oxygen: 86.3 (% sat)

Specific Cond: 324.6 (µS/cm)

Water Temperature: 19.2 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	1.2	0.1	0.2	0.1	1.6	0.1	0.1	0.1	0.3	0.1	2.1	0.1	1.0	0.1	0.6	0.1	9.0	0.1	0.2	0.1	0.2	0.1
2	1.9	0.1	0.5	0.1	1.8	0.1	0.5	0.2	0.7	0.1	2.3	0.1	1.3	0.1	0.8	0.1	9.1	0.1	0.3	0.1	0.4	0.1
3	2.6	0.2	0.8	0.1	2.0	0.1	0.9	0.1	1.1	0.1	2.5	0.1	1.6	0.2	1.0	0.1	9.2	0.1	0.4	0.1	0.6	<0.1
4	3.3	0.1	1.1	0.2	2.2	0.1	1.3	<0.1	1.5	<0.1	2.7	0.1	1.9	0.2	1.2	0.2	9.3	0.1	0.5	0.1	0.8	<0.1
5	4.0	0.1	1.4	0.2	2.4	0.1	1.7	0.1	1.9	0.1	2.9	0.1	2.2	0.2	1.4	0.2	9.4	0.1	0.6	0.1	1.0	<0.1
6	4.7	<0.1	1.7	0.1	2.6	0.2	2.1	0.1	2.3	0.1	3.1	0.2	2.5	0.1	1.6	0.2	9.5	0.1	0.7	<0.1	1.2	0.1
7	5.4	<0.1	2.0	0.2	2.8	0.2	2.5	0.1	2.7	0.1	3.3	0.1	2.8	0.1	1.8	0.2	9.6	0.1	0.8	0.1	1.4	0.2
8	6.1	0.1	2.3	0.1	3.0	0.1	2.9	0.2	3.1	0.1	3.5	0.1	3.1	0.2	2.0	0.2	9.7	0.1	0.9	<0.1	1.6	0.1
9	6.8	0.1	2.6	0.1	3.2	0.1	3.3	0.2	3.5	0.2	3.7	0.1	3.4	0.2	2.2	0.2	9.8	0.1	1.0	<0.1	1.8	0.1
10	7.5	0.2	2.9	0.1	3.4	0.1	3.7	0.3	3.9	0.2	3.9	0.1	3.7	0.1	2.4	0.1	9.9	0.1	1.1	0.1	2.0	0.1
11	8.2	0.1	3.2	0.1	3.6	0.1	4.1	0.1	4.3	0.1	4.1	0.1	4.0	0.1	2.6	0.1	10.0	0.1	1.2	0.1	2.2	0.1
12	8.9	Ø	3.6	Ø	4.2	Ø	4.6	Ø	5.0	Ø	4.6	Ø	4.5	Ø	3.3	Ø	10.5	Ø	11.3	Ø	4.9	Ø
Feature Type (riffle, run, or pool)	run		run		run		run		run		run		run		run		run		run		run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Tammy Trahan Date: 22MAY2007

Orig 5-25-07

WBID# 674
Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 23MAY2007 ; 09:35	Site Location Description (e.g., road crossing): Downstream of Ivory Rd crossing
Personnel (Data Collectors): JRH, JAH	Facility Name: Green City WWTF
Current Weather Conditions: Overcast, ~70°F	Permit Number: mo 0112135
Weather Conditions for Past 10 days: 1.3" rain	
Drought Conditions?: No drought ☐; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☒	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0510465 Y: 4437207 (15 T)

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 17 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
0674-4-1047	UPSTREAM		
0674-4-1048	DOWNSTREAM		
0674-4-1049	BRIDGE, IVORY RD.		
0674-4-1050	SLOPE, RT BANK, DOWNSTREAM		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 674
Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
5	85	10			

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☒ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [signature] Date of Survey: 23 MAY 2007

Organization: AES / MEC WATER Position: FIELD TECH.

DMC 5-25-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 674 Site #: 0674_4 (WBID_Site#)

Estimated Channel Incision: 4 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0510465 UTM Y: 4437207

Horizontal Accuracy Estimate (GPS Data Quality): +/- 17 (feet)

Average Stream Width: 7.5 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: JRH; ~~JAA~~

Dissolved Oxygen

Date: 23 MAY 2007 Time: 09:35

① Dissolved Oxygen: 9.1 (mg/L)

Dissolved Oxygen: 100.6 (% sat)

Specific Cond: 338.2 (µS/cm)

Water Temperature: 20.2 (°C)

① recalibrated twice, readings still high

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.2	0.1	0.5	0.1	2.8	0.1	1.2	0.1	0.4	0.1	5.5	0.1	0.2	0.1	0.1	0.1	1.5	0.1	0.5	0.1	0.2	0.1
2	0.8	0.2	1.2	<0.1	3.4	0.2	1.9	0.1	1.1	0.1	5.6	0.1	0.6	0.2	0.8	0.2	1.9	0.1	1.1	0.1	0.9	0.1
3	1.4	0.2	1.9	<0.1	4.0	0.1	2.8	0.1	1.8	<0.1	5.7	0.1	1.0	0.2	1.5	0.2	2.3	<0.1	1.7	0.2	1.6	0.2
4	2.0	0.1	2.6	<0.1	4.6	0.1	3.5	0.1	2.5	<0.1	5.8	0.2	1.4	0.3	2.2	0.2	2.7	<0.1	2.3	0.1	2.3	0.2
5	2.6	<0.1	3.3	0.1	5.2	0.1	4.2	0.1	3.2	<0.1	5.9	0.2	1.8	0.3	2.9	0.2	3.1	<0.1	2.9	0.1	3.0	0.1
6	3.2	<0.1	4.0	0.1	5.8	0.2	4.9	0.1	3.9	<0.1	6.0	0.2	2.2	0.4	3.8	0.2	3.5	0.1	3.5	0.1	3.7	<0.1
7	3.8	<0.1	4.7	0.2	6.4	0.2	5.8	0.1	4.6	<0.1	6.1	0.2	2.6	0.3	4.5	0.2	3.9	0.1	4.1	0.2	4.4	<0.1
8	4.4	0.1	5.4	0.2	7.0	0.2	6.5	0.1	5.3	<0.1	6.2	0.2	3.0	0.4	5.2	0.2	4.3	0.2	4.7	0.2	5.1	0.1
9	5.0	0.2	6.1	0.3	7.6	0.2	7.2	0.1	6.0	<0.1	6.3	0.2	3.4	0.3	5.9	0.2	4.7	0.2	5.3	0.2	5.8	0.2
10	5.6	0.2	6.8	0.2	8.2	0.2	7.9	0.1	6.7	<0.1	6.4	0.2	3.8	0.3	6.8	0.2	5.1	0.1	5.9	0.1	6.5	0.2
11	6.2	0.1	7.5	0.1	8.8	0.1	8.8	0.1	7.4	0.1	6.5	0.1	4.2	0.1	7.5	0.1	5.5	0.1	6.5	0.1	7.2	0.1
12	6.7	Ø	8.6	Ø	9.0	Ø	8.6	Ø	8.4	Ø	7.4	Ø	5.4	Ø	7.5	Ø	6.2	Ø	7.2	Ø	7.4	Ø
Feature Type (riffle, run, or pool)	run		pool		pool		pool		run		run		pool		run		run		run		run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Jeffrey A. Hamilton Date: 23 MAY 2007

RMC 5-25-07

WBID# 674
Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 23 MAY 2007, 11:00A	Site Location Description (e.g., road crossing): downstream of Windsong Rd
Personnel (Data Collectors): JRH, JHH	Facility Name: Green City WWTF
Current Weather Conditions: OVERCAST 75°F	Permit Number: MO 0112135
Weather Conditions for Past 10 days: 1.3" rain	
Drought Conditions?: No drought ☐; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☒	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0511863 Y: 4434695 (15T)

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 19 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
0674_5_1051	UPSTREAM		
0674_5_1052	DOWNSTREAM		
0674_5_1053	SLOPE, RT BANK, DOWNSTREAM		
0674_5_1054	BRIDGE, WINDSONG RD.		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 674
Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
5	95				

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: BROWN
BOTTOM DEPOSIT:	☐ Sludge	☒ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [signature] Date of Survey: 23 MAY 2007

Organization: AES / MEC WATER Position: FIELD TECH

RWC 5-25-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 674 Site #: 0674_5 (WBID_Site#)

Estimated Channel Incision: 3 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0511863 UTM Y: 4434695

Horizontal Accuracy Estimate (GPS Data Quality): +/- 19 (feet)

Average Stream Width: 7.0 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: JRH, JAH

Dissolved Oxygen

Date: 23 MAY 2007 Time: 11:00

Dissolved Oxygen: 8.74 (mg/L)

Dissolved Oxygen: 100.3 (% sat)

Specific Cond: 363.1 (µS/cm)

Water Temperature: 21.7 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.6	0.1	0	0.4	0.1	0.1	0.2	0.1	0.4	0.1	0.9	0.1	0.7	0.1	1.8	0.1	0.9	0.1	0.4	0.1	0.1	0.1
2	1.4	0.2	0.9	0.5	1.1	0.5	1.1	0.4	1.0	0.2	1.3	0.2	1.2	0.2	2.3	0.1	1.1	0.1	0.6	0.2	0.3	0.1
3	2.2	0.2	1.8	0.4	2.1	0.5	2.0	0.4	1.6	0.2	1.7	0.2	1.7	0.2	2.8	0.1	1.3	0.2	0.8	0.1	0.5	0.2
4	3.0	0.3	2.7	0.4	3.1	0.4	2.9	0.3	2.2	0.2	2.1	0.2	2.2	0.2	3.3	0.2	1.5	0.2	1.0	0.2	0.7	0.2
5	3.8	0.3	3.6	0.3	4.1	0.3	3.8	0.3	2.8	0.3	2.5	0.3	2.7	0.3	3.8	0.2	1.7	0.2	1.2	0.2	0.9	0.2
6	4.6	0.4	4.5	0.3	5.1	0.2	4.7	0.3	3.4	0.3	2.9	0.3	3.2	0.2	4.3	0.2	1.9	0.2	1.4	0.2	1.1	0.2
7	5.4	0.5	5.4	0.3	6.1	0.3	5.6	0.3	4.0	0.4	3.4	0.4	3.7	0.3	4.8	0.2	2.1	0.2	1.6	0.1	1.3	0.2
8	6.2	0.6	6.3	0.4	7.1	0.3	6.5	0.4	4.6	0.4	3.8	0.4	4.2	0.3	5.3	0.2	2.3	0.1	1.8	0.1	1.5	0.1
9	7.0	0.7	7.2	0.4	8.1	0.3	7.4	0.3	5.2	0.3	4.2	0.4	4.7	0.3	5.8	0.2	2.5	0.1	2.0	0.1	1.7	0.1
10	7.8	0.4	8.1	0.3	9.1	0.7	8.3	0.4	5.8	0.2	4.6	0.3	5.2	0.2	6.3	0.1	2.7	0.1	2.2	0.1	1.9	0.1
11	8.6	0.1	9.0	0.1	10.1	0.1	9.2	0.1	6.4	0.1	5.0	0.1	5.7	0.1	6.8	0.1	2.9	0.1	2.4	0.1	2.1	0.1
12	8.7	0	9.2	0	10.5	0	9.8	0	6.7	0	5.5	0	6.4	0	6.0	0	4.1	0	4.2	0	6.0	0
Feature Type (riffle, run, or pool)	Pool		Pool		Pool		Pool		Pool		Pool		run		run		run		run		run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Jeffrey A Hamilton Date: 23 MAY 2007

RMC 5-23-07

WBID# 674
Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 23 MAY 2007, 11'55	Site Location Description (e.g., road crossing): downstream of Hwy 11 Crossing
Personnel (Data Collectors): JRH, JMH	
Current Weather Conditions: partly sunny, 75°F	Facility Name: Green City WWTF
	Permit Number: MO 0112135
Weather Conditions for Past 10 days: 1.3" rain	
Drought Conditions?: No drought ☐; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☒	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0512875 Y: 4432810 (15T)

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 20 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
0674-6-1055	UPSTREAM		
0674-6-1056	DOWNSTREAM		
0674-6-1057	BRIDGE, HWY 11		
0674-6-1058	SLOPE, LEFT BANK, DOWNSTREAM OF BRIDGE		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 674
Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
	5	85	10		

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☒ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jeffrey A Heinl Date of Survey: 23 MAY 2007

Organization: AES / MEC WATER Position: FIELD TECH

QAQC 5-25-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 674 Site #: 0674-6 (WBID_Site#)

Estimated Channel Incision: 3 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0512875 UTM Y: 4432810

Horizontal Accuracy Estimate (GPS Data Quality): +/- 20 (feet)

Average Stream Width: 7.3 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)

Field Staff: JRH, JAH

Dissolved Oxygen

Date: 23 MAY 2007 Time: 1155

Dissolved Oxygen: 8.74 (mg/L)

Dissolved Oxygen: 101.6 (% sat)

Specific Cond: 364.0 (µS/cm)

Water Temperature: 22.4 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	1.0	0.1	0.1	0.1	0	0.1	0.1	0.1	3.5	0.1	0.7	0.1	0.4	0.1	0.6	0.1	1.2	0.1	0.9	0.1	0.1	0.1
2	1.1	0.2	0.4	0.2	0.4	0.2	0.3	0.2	3.8	0.1	1.6	0.1	1.3	0.1	1.1	0.2	1.6	0.1	1.4	0.2	1.0	0.1
3	1.2	0.2	0.7	0.2	0.8	0.2	0.5	0.2	4.1	0.1	2.5	<0.1	2.2	0.2	1.6	0.2	2.0	0.1	1.9	0.3	1.9	0.1
4	1.3	0.2	1.0	<0.1	1.2	0.2	0.7	0.2	4.4	0.2	3.4	0.1	3.1	0.3	2.1	0.3	2.4	0.2	2.4	0.3	2.8	<0.1
5	1.4	0.2	1.3	<0.1	1.6	0.1	0.9	0.2	4.7	0.2	4.3	0.1	4.0	0.4	2.6	0.3	2.8	0.3	2.9	0.4	3.7	<0.1
6	1.5	0.2	1.6	0.1	2.0	0.1	1.1	0.2	5.0	0.2	5.2	0.1	4.9	0.5	3.1	0.3	3.3	0.3	3.4	0.4	4.6	0.1
7	1.6	0.2	1.9	0.1	2.4	0.1	1.3	0.2	5.3	0.2	6.1	0.1	5.8	0.4	3.6	0.4	3.6	0.4	3.9	0.4	5.5	0.2
8	1.7	0.2	2.2	0.1	2.8	0.1	1.5	0.2	5.6	0.2	7.0	<0.1	6.7	0.4	4.1	0.5	4.0	0.5	4.4	0.5	6.4	0.2
9	1.8	0.1	2.5	0.1	3.2	0.1	1.7	0.1	5.9	0.1	7.9	<0.1	7.6	0.4	4.6	0.5	4.4	0.4	4.9	0.5	7.3	0.2
10	1.9	0.1	2.8	0.1	3.6	0.1	1.9	0.1	6.2	0.1	8.8	<0.1	8.5	0.4	5.1	0.4	4.8	0.3	5.4	0.4	8.2	0.3
11	2.0	0.1	3.1	0.1	4.0	0.1	2.1	0.1	6.5	0.1	9.7	0.1	9.4	0.1	5.6	0.1	5.2	0.2	5.9	0.1	9.1	0.1
12	6.0	0	5.8	0	4.7	0	6.8	0	8.4	0	10.3	0	10.2	0	6.0	0	6.0	0	6.2	0	10.2	0
Feature Type (riffle, run, or pool)	run		run		run		run		run		run		pool		pool		pool		pool		pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [signature] Date: 23 MAY 2007

RMC 5-25-07

WBID# 674
Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 23MAY2007	Site Location Description (e.g., road crossing): Downstream of ASPEN ST crossing
Personnel (Data Collectors): JRH, JMH	Facility Name: Green City WWTF
Current Weather Conditions: Sunny, ~80°F	Permit Number: MO 0112135
Weather Conditions for Past 10 days: 1.3" rain	
Drought Conditions?: No drought ☐; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☒	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0513865 Y: 4430122 (1ST)

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 23 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
0674-7-1059	UPSTREAM		
0674-7-1060	DOWNSTREAM		
0674-7-1061	Slope, Rt. Bank, downstream		
0674-7-1062	Bridge, Aspen Rd.		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 674
Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
	5	80	10	5	

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: BROWN
BOTTOM DEPOSIT:	☒ Sludge	☒ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Tiffani A Hamilton Date of Survey: 23MAY 2007

Organization: AES/MEC WATER Position: FIELD TECH

DHC 5-25-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 674 Site #: 0674_7 (WBID_Site#)

Estimated Channel Incision: 4 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0513865 UTM Y: 4430122

Horizontal Accuracy Estimate (GPS Data Quality): +/- 23 (feet)

Average Stream Width: 10.4 (meters) Length of Survey Segment: 200 (meters) (20x average stream width)

Field Staff: JRH, JAH

Dissolved Oxygen

Date: 23 MAY 2007 Time: 13:15

Dissolved Oxygen: 9.78 (mg/L)

Dissolved Oxygen: 114.9 (% sat)

Specific Cond: 388.8 (µS/cm)

Water Temperature: 23.1 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.2	0.1	0.3	0.1	0.3	0.1	0.6	0.1	0.5	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	2.8	0.1	1.5	0.1
2	1.5	0.4	1.6	0.4	1.6	0.2	1.2	0.2	1.2	0.2	1.7	0.2	1.5	0.3	0.9	0.4	0.6	0.2	3.0	0.1	1.8	0.1
3	2.8	0.3	2.9	0.4	2.9	0.2	1.8	0.3	1.9	0.3	3.1	0.2	2.8	0.3	1.7	0.1	1.1	0.3	3.2	0.1	2.1	0.1
4	4.1	0.5	4.2	0.4	4.2	0.2	2.4	0.3	2.6	0.3	4.5	0.2	4.1	0.4	2.5	0.2	1.6	0.3	3.4	0.1	2.4	0.2
5	5.4	0.5	5.5	0.2	5.5	0.2	3.0	0.4	3.3	0.4	5.9	0.2	5.4	0.4	3.3	0.5	2.1	0.2	3.6	0.1	2.7	0.2
6	6.7	0.3	6.8	0.3	6.8	0.2	3.6	0.4	4.0	0.5	7.3	0.1	6.7	0.3	4.1	0.6	2.6	0.2	3.8	0.2	3.0	0.1
7	8.0	0.2	8.1	0.2	8.1	0.2	4.2	0.4	4.7	0.6	8.7	<0.1	9.0	0.3	4.9	0.4	3.1	0.1	4.0	0.2	3.3	0.1
8	9.3	0.2	9.4	0.2	9.4	0.3	4.8	0.4	5.4	0.6	10.1	0.1	10.3	0.3	5.7	0.4	3.6	0.1	4.2	0.2	3.6	0.1
9	10.6	0.3	10.7	0.1	10.7	0.3	5.4	0.5	6.1	0.7	11.5	0.1	11.6	0.2	6.5	0.2	4.1	0.1	4.4	0.2	3.9	0.1
10	11.9	0.2	12.0	0.2	12.0	0.3	6.0	0.5	6.8	0.7	12.9	0.1	12.9	0.2	7.3	0.2	4.6	0.1	4.6	0.2	4.2	0.1
11	13.2	0.1	13.3	0.1	13.3	0.1	6.6	0.2	7.5	0.1	14.3	0.4	14.2	0.1	8.1	0.1	5.1	0.1	4.8	0.1	4.5	0.1
12	13.8	0	13.8	0	13.5	0	7.5	0	7.9	0	15.0	0	14.0	0	9.5	0	7.0	0	6.7	0	5.8	0
Feature Type (riffle, run, or pool)	pool		pool		pool		pool		pool		run		pool		pool		run		run		run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Jillian A Hamilton Date: 23 MAY 2007

RJWC 5-25-07

WBID# 674
Site# 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 23 MAY 2007, 13:43	Site Location Description (e.g., road crossing): 200m. downstream of BASSWOOD ST. crossing
Personnel (Data Collectors): JRH, JAH	Facility Name: Green City WWTF
Current Weather Conditions: sunny, ~80°F	Permit Number: MO 0112135
Weather Conditions for Past 10 days: 1.3" rain	
Drought Conditions?: No drought ☐; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☒	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0513778 Y: 4429912 (15T)

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 23 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
0674_8_1063	UPSTREAM		
0674_8_1064	DOWNSTREAM		
0674_8_1065	SLOPE, RT. BANK, DOWNSTREAM OF SITE 7; T11		
~~0674_8_~~	~~DUP~~		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 674
Site# 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☒ Other: TIRES
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	95 % Sand	5 % Silt	% Mud/Clay	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:		☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	BROWN	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:		☐ Sludge	☒ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:		☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Tiffanie A Hamilton Date of Survey: 23 MAY 2007

Organization: AECOM/MEC WATER Position: FIELD TECH

RWC 5-25-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 674 Site #: 0674_8 (WBID_Site#)

Estimated Channel Incision: 4 ave (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0513778 UTM Y: 4429912

Horizontal Accuracy Estimate (GPS Data Quality): +/- 23 (feet)

Average Stream Width: 8.1 (meters) Length of Survey Segment: 160 (meters) (20x average stream width)

Field Staff: JRH, MH

Dissolved Oxygen

Date: 23 MAY 2007 Time: 13:43

Dissolved Oxygen: 10.3 (mg/L)

Dissolved Oxygen: 113.5 (% sat)

Specific Cond: 315.7 (µS/cm)

Water Temperature: 23.8 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	2.6	0.1	0.4	0.1	0.3	0.1	0.3	0.1	0.3	0.1	0.4	0.1	0.1	0.1	0.8	0.1	0.7	0.1	3.0	0.1	0.2	0.1
2	3.0	0.1	1.0	0.1	0.9	0.1	0.8	0.1	0.9	0.2	1.1	0.2	0.9	<0.1	1.6	0.2	1.7	0.1	3.5	0.1	1.0	0.1
3	3.4	0.1	1.6	0.1	1.5	<0.1	1.3	0.3	1.5	0.3	1.8	0.2	2.7	<0.1	2.4	0.2	2.7	0.1	4.0	0.1	1.8	0.2
4	3.8	0.1	2.2	0.1	2.1	<0.1	1.8	0.3	2.1	0.3	2.5	0.1	3.5	0.1	3.2	0.2	3.7	0.2	4.5	0.1	2.6	0.2
5	4.2	0.1	2.8	0.1	2.7	0.1	2.3	<0.1	2.7	0.2	3.2	0.1	4.3	0.1	4.0	0.3	4.7	0.2	5.0	0.2	3.4	0.2
6	4.6	0.1	3.4	<0.1	3.3	<0.1	2.8	<0.1	3.3	0.2	3.9	<0.1	5.1	0.1	4.8	0.3	5.7	<0.1	5.5	0.3	4.2	0.2
7	5.0	0.1	4.0	<0.1	3.9	0.2	3.3	0.1	3.9	0.1	4.6	<0.1	5.9	<0.1	5.6	0.3	6.7	<0.1	6.0	0.4	5.0	0.2
8	5.4	<0.1	4.6	<0.1	4.5	0.2	3.8	0.1	4.5	0.2	5.3	0.2	6.7	0.1	6.4	0.4	7.7	<0.1	6.5	0.5	5.8	0.2
9	5.8	<0.1	5.2	0.1	5.1	0.2	4.3	0.2	5.1	0.2	6.0	0.2	8.5	0.2	7.2	0.3	8.7	0.1	7.0	0.5	6.6	0.2
10	6.2	<0.1	5.8	<0.1	5.7	0.2	4.8	0.3	5.7	0.2	6.7	0.1	9.3	0.3	8.0	0.2	9.7	0.2	7.5	0.5	7.4	0.3
11	6.6	0.1	6.4	0.1	6.3	0.1	5.3	0.1	6.3	0.1	7.4	0.1	10.1	0.1	8.8	0.1	10.7	0.1	8.0	0.1	8.2	0.1
12	7.8	0	7.4	0	6.4	0	5.6	0	6.7	0	8.4	0	8.8	0	9.6	0	11.2	0	8.5	0	9.5	0
Feature Type (riffle, run, or pool)	run		run		run		run		run		run		run		pool		run		run		pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Tiffani A Hamilton Date: 23 MAY 2007

QAC 5-25-07

WBID# 674
Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 23 MAY 2007 15:57	Site Location Description (e.g., road crossing): 200m upstream of site 10
Personnel (Data Collectors): JRH, JMH	
Current Weather Conditions: mostly cloudy, windy, 75°F	Facility Name: Green City WWTF
	Permit Number: MO 0112135
Weather Conditions for Past 10 days: 1.3" Rain	
Drought Conditions?: No drought ☐; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☒	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0512997 Y: 4423388 (15T)

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 28 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID_Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
0674_9_1066	UPSTREAM	0674_9_1072	Bridge
0674_9_1067	DOWNSTREAM		
0674_9_1068	SLOPE, RT BANK		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 674
Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
1		99			

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☒ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jeffrey A Hall Date of Survey: 23 MAY 2007

Organization: AES/MEC WATER Position: FIELD TECH

QA/QC 5-25-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 674 Site #: 0674_9 (WBID_Site#)

Estimated Channel Incision: 4 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0512997 UTM Y: 4423388

Horizontal Accuracy Estimate (GPS Data Quality): +/- 28 (feet)

Average Stream Width: 8.6 (meters) Length of Survey Segment: 170 (meters) (20x average stream width)

Field Staff: JRH, TAH

Dissolved Oxygen

Date: 23MAY2007 Time: 15:57

Dissolved Oxygen: 8.79 (mg/L)

Dissolved Oxygen: 99.8 (% sat)

Specific Cond: 314.3 (µS/cm)

Water Temperature: 23.9 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.7	0.1	2.8	0.1	4.8	0.1	2.0	0.1	0.2	0.1	0.3	0.1	0.4	0.1	0.8	0.1	4.5	0.1	6.4	0.1	6.4	0.1
2	1.3	0.1	3.2	0.2	5.0	0.1	2.8	0.2	0.8	0.1	0.9	0.1	0.6	0.2	1.1	0.2	5.1	0.2	6.7	0.1	6.7	0.1
3	1.9	0.1	3.6	0.2	5.2	0.1	3.6	0.2	1.4	0.2	1.5	0.1	0.8	0.2	1.4	0.2	5.7	<0.1	7.0	0.1	7.0	0.1
4	2.5	0.1	4.0	0.2	5.4	0.2	4.4	0.1	2.0	0.2	2.1	0.2	1.0	0.2	1.7	0.2	6.3	<0.1	7.3	0.1	7.3	0.1
5	3.1	0.1	4.4	0.1	5.6	0.2	5.2	<0.1	2.6	0.2	2.7	0.2	1.2	0.1	2.0	0.2	6.9	<0.1	7.6	<0.1	7.6	0.1
6	3.7	0.1	4.8	0.1	5.8	0.2	6.0	<0.1	3.2	<0.1	3.3	0.1	1.4	0.1	2.3	0.2	7.5	<0.1	7.9	<0.1	7.9	0.1
7	4.3	0.1	5.2	0.1	6.0	0.1	6.8	<0.1	3.8	0.1	3.9	<0.1	1.6	0.1	2.6	0.2	8.1	0.1	8.2	<0.1	8.2	0.1
8	4.9	0.1	5.6	0.1	6.2	0.1	7.6	<0.1	4.4	0.1	4.5	<0.1	1.8	0.1	2.9	0.2	8.7	0.1	8.5	0.2	8.5	0.1
9	5.5	0.1	6.0	0.1	6.4	0.1	8.4	0.1	5.2	0.2	5.1	<0.1	2.0	0.1	3.2	0.1	9.3	0.1	8.8	0.2	8.8	0.1
10	6.1	0.1	6.4	0.1	6.6	0.1	9.2	0.2	5.8	0.2	5.7	0.1	2.2	0.1	3.5	0.1	9.9	0.1	9.1	0.2	9.1	0.2
11	6.7	0.1	6.8	0.1	6.8	0.1	10.0	0.1	6.4	0.1	6.3	0.1	2.4	0.1	3.8	0.1	10.5	0.1	9.4	0.1	9.4	0.1
12	6.8	0	6.9	0	8.3	0	10.6	0	7.9	0	7.3	0	6.5	0	7.8	0	11.3	0	12.0	0	10.1	0
Feature Type (riffle, run, or pool)	run		run		run		run		run		run		run		run		run		run		run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Jeffrey A Hall Date: 23MAY2007

QAC 5-23-07

WBID# 674
Site# 10

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 23 MAY 2007, 16:26	Site Location Description (e.g., road crossing): Downstream of Hwy J bridge
Personnel (Data Collectors): JRH DAH	Facility Name: Green City WWTF
Current Weather Conditions: mostly cloudy, windy, 75°F	Permit Number: MO 0112135
Weather Conditions for Past 10 days: 1.3" rain	
Drought Conditions?: No drought ☐; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☒	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0512878 Y: 4423273 (15T)

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 21 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
0674_10_1069	UPSTREAM		
0674_10_1070	DOWNSTREAM		
0674_10_1071	SLOPE, LEFT BANK, downstream of bridge		
0674_10_1072	BRIDGE		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 674
Site# 10

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☒ Other: TREES
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

1	% Cobble	5	% Gravel	89	% Sand	5	% Silt	% Mud/Clay	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☒ Solids	☒ Fine sediments	☐ None	☐ Other:
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jeffrey A Hamilton Date of Survey: 23 MAY 2007

Organization: AECOM WATER Position: FIELD TECH

QA/QC 5-25-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 674 Site #: 0674_10 (WBID_Site#)

Estimated Channel Incision: 2 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0512878 UTM Y: 4423273

Horizontal Accuracy Estimate (GPS Data Quality): +/- 21 (feet)

Average Stream Width: 8.2 (meters) Length of Survey Segment: 160 (meters) (20x average stream width)

Field Staff: JRH, JH

Dissolved Oxygen

Date: 23MAY2007 Time: 16:26

Dissolved Oxygen: 7.89 (mg/L)

Dissolved Oxygen: 92.1 (% sat)

Specific Cond: 266.5 (µS/cm)

Water Temperature: 23.7 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.2	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.6	0.1	3.3	0.1	4.6	0.1	0.7	0.1	1.9	0.1	2.2	0.1	0.6	0.1
2	1.1	0.4	1.2	0.2	0.8	0.2	0.7	0.3	1.3	0.2	3.9	0.1	5.0	0.1	1.2	0.1	2.4	0.1	2.7	0.1	1.3	0.2
3	2.0	0.3	2.1	0.3	1.4	0.3	1.2	0.3	2.0	0.3	4.5	0.1	5.4	0.1	1.7	0.2	2.9	0.1	3.2	0.1	2.0	0.2
4	2.9	0.4	3.0	0.3	2.0	0.2	1.7	0.2	2.7	0.3	5.1	0.1	5.8	0.1	2.2	0.2	3.4	0.2	3.7	0.1	2.7	0.2
5	3.8	0.3	3.9	0.3	2.6	0.2	2.2	0.2	3.4	0.2	5.7	0.1	6.2	0.1	2.7	0.3	3.9	0.2	4.2	0.2	3.4	0.2
6	4.7	0.3	4.8	0.3	3.2	0.2	2.7	0.2	4.1	0.2	6.3	0.1	6.6	0.1	3.2	0.3	4.4	0.2	4.7	0.3	4.1	0.3
7	5.6	0.2	5.7	0.2	3.8	0.2	3.2	0.2	4.8	<0.1	6.9	0.1	7.0	0.1	3.7	0.4	4.9	0.2	5.2	0.3	4.8	0.3
8	6.5	0.2	6.6	0.2	4.4	0.2	3.7	0.2	5.5	<0.1	7.5	0.1	7.4	0.1	4.2	0.5	5.4	0.2	5.7	0.2	5.5	0.3
9	7.4	0.2	7.5	0.2	5.0	0.1	4.2	0.1	6.2	0.1	8.1	0.1	7.8	0.2	4.7	0.5	5.9	0.3	6.2	0.2	6.2	0.5
10	8.3	0.2	8.4	0.2	5.6	0.1	4.7	0.1	6.9	0.2	8.7	0.1	8.2	0.1	5.2	0.6	6.4	0.2	6.7	0.2	6.9	0.4
11	9.2	0.1	9.3	0.1	6.2	0.1	5.2	0.1	7.6	0.1	9.3	0.1	8.6	0.1	5.7	0.5	6.9	0.1	7.2	0.1	7.6	0.1
12	10.5	Ø	9.4	Ø	8.0	Ø	6.4	Ø	8.0	Ø	10.1	Ø	8.8	Ø	6.4	Ø	7.2	Ø	7.5	Ø	8.1	Ø
Feature Type (riffle, run, or pool)	run		run		run		run		run		run		run		run		run		run		pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m

Signed: [signature] Date: 23 MAY 2007

OKC 5-25-07

WBID# 0674
Site# 12

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/23/07 17:00	Site Location Description (e.g., road crossing): US of Aurora St. Road Crossing — US of TIB
Personnel (Data Collectors): DC/CB	
Current Weather Conditions: windy, clear	Facility Name: Green City WWTP
	Permit Number: MO 0112135
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0514653 Y: 4419311

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode	X	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 18.4 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
0674-12-16	US View from DS Transect		
0674-12-17	DS View from US Transect		
0674-12-18	Footprints in stream		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☑ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☑ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 0674
Site# 12

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☐ Roads	☐ Rope swings	☑ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☑ Yes ☐ No

If so, is there an obvious current? ☑ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	5	% Gravel	90	% Sand	5	% Silt	% Mud/Clay	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

minimal periphyton <5%

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☑ None	☐ Other:
COLOR:	☑ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☑ Fine sediments	☐ None	☐ Other: 3% silt
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☑ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: _____ Date of Survey: 5/23/07

Organization: MEC Water Resources Position: Res. Tech.

RHC 5-24-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0674 Site #: 12PC 0674_12
(WBID_Site#)

Estimated Channel Incision: 1.3 (m) (height between low bank width and water)

GPS Location (taken at transect 1): DS

UTM X: 4419311 UTM Y: 0514653

Horizontal Accuracy Estimate (GPS Data Quality): +/- 18.4 (feet)

Average Stream Width: 10 (meters) Length of Survey Segment: 200 (meters)
(20x average stream width)

Field Staff: DC/CB

Dissolved Oxygen

Date: 5/22/07 Time: 12PC 17:00

Dissolved Oxygen: 8.19 (mg/L)

Dissolved Oxygen: 95.2 (% sat)

Specific Cond: 444 (µS/cm)

Water Temperature: 24.6 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.4	0.1	0.4	0.1	0.4	0.1	0.9	0.1	0.1	0.1	1.0	0.1	1.8	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.5	0.1
2	0.9	0.2	0.8	0.1	1.2	0.1	0.96	0.1	0.81	0.6	1.57	0.1	2.22	0.1	0.67	0.2	1.5	0.2	1.0	0.4	1.8	0.3
3	1.3	0.2	1.2	0.1	1.9	<0.10	1.52	0.3	1.52	0.4	2.14	0.1	2.64	0.1	1.24	0.1	2.9	0.2	1.7	0.5	3	0.3
4	1.8	0.3	1.5	0.1	2.7	0.1	2.08	0.3	2.23	0.3	2.71	0.1	3.06	0.2	1.81	0.1	4.2	0.2	2.4	0.7	4.3	0.2
5	2.3	0.3	1.9	0.1	3.5	0.1	2.64	0.2	2.94	0.3	3.28	0.1	3.48	0.2	2.38	0.1	5.6	0.2	3.1	0.9	5.5	0.2
6	2.8	0.3	2.3	0.2	4.3	0.1	3.20	0.2	3.65	0.2	3.85	0.1	3.90	0.2	2.95	0.1	7	0.1	3.9	<1.0	6.8	0.4
7	3.2	0.3	2.7	0.2	5.0	0.1	3.76	0.2	4.36	0.2	4.42	0.1	4.32	0.1	3.52	0.1	8.4	0.2	4.6	<1.0	8	0.4
8	3.7	0.3	3.1	0.3	5.8	0.2	4.32	0.1	5.07	0.3	4.99	0.1	4.74	0.1	4.10	<0.1	9.8	0.2	5.3	<1.0	9.3	0.4
9	4.2	0.3	3.4	0.3	6.6	0.3	4.88	0.1	5.78	0.2	5.56	0.3	5.16	0.1	4.70	0.1	11.1	0.3	6.0	<1.0	10.5	0.6
10	4.6	0.2	3.8	0.3	7.3	0.4	5.44	0.1	6.49	0.2	6.13	0.3	5.58	0.1	5.23	0.1	12.5	0.3	6.7	0.6	11.8	0.7
11	5.1	0.1	4.2	0.1	8.1	0.1	6.0	0.1	7.2	0.1	6.7	0.1	6.0	0.1	5.8	0.1	13.9	0.1	7.4	0.1	13.0	0.1
12	5.3	0	4.4	0	8.2	0	7.2	0	7.5	0	6.8	0	6.4	0	8.2	0	14.0	0	7.5	0	13.2	0
Feature Type (riffle, run, or pool)	Pool		Pool		Pool		Pool		Pool		Run		Run		R-Dry		Pool		Pool		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Date: 5/23/07

RC 5-24-07

WBID# 0674
Site# 13

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/23/07 16:20	Site Location Description (e.g., road crossing): US of Aurora St. Road Crossing
Personnel (Data Collectors): DC/CB	Facility Name: Green City WWTP
Current Weather Conditions: clear, windy	Permit Number: MO 011 2135
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0514654 Y: 4411901 4

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode	X	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 60.6 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID_Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
0674_13_14	US View from DS Transect		
0674_13_15	DS View from US Transect		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☑ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 0674
Site# 13

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: None					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☑ Yes ☐ No

If so, is there an obvious current? ☑ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
	5	90	5		

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

minimal periphyton <5%

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☑ None	☐ Other:
COLOR:	☑ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☑ Fine sediments	☐ None	☐ Other: 5% silt
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☑ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: _____ Date of Survey: 5/23/07

Organization: MEC Water Resources, Inc. Position: Res. Tech

Rev'd 5-24-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0674 Site #: 13 DC 0674_13 (WBID_Site#)

Estimated Channel Incision: 1.8 DC (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 441901 DC UTM Y: 0514654

Horizontal Accuracy Estimate (GPS Data Quality): +/- 60.6 (feet)

Average Stream Width: 13 (meters) Length of Survey Segment: 260 (meters)
(20x average stream width)

Field Staff: DC/CB

Dissolved Oxygen

Date: 5/23/07 Time: 16:20

Dissolved Oxygen: 8.05 (mg/L)

Dissolved Oxygen: 97.8 (% sat)

Specific Cond: 442 (µS/cm)

Water Temperature: 24.4 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	1.3	0.1	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1
2	2.2	0.1	1.9	0.2	1.5	0.3	1.6	0.2	1.1	0.2	1.4	<0.1	0.7	0.2	1.5	0.4	1.3	0.1	1.7	0.6	1.0	0.6
3	3.1	0.1	3.0	0.1	2.9	0.5	3.0	0.2	2.1	0.2	2.6	|	1.3	0.3	2.9	0.8	2.5	0.1	3.0	>1.0	1.9	0.7
4	4	0.1	4.0	0.2	4.3	0.6	4.5	0.1	3.1	0.1	3.9	|	1.9	<0.1	4.3	0.9	3.8	0.1	4.4	|	2.8	>1.0
5	4.9	0.2	5.0	0.1	5.7	0.6	6.0	0.2	4.1	|	5.1	|	2.6	|	5.7	>1.0	5.0	0.1	5.8	|	3.7	|
6	5.8	0.3	6.1	0.2	7.1	0.6	7.4	0.3	5.1	|	6.4	|	3.2	|	7.2	0.4	6.2	0.1	7.2	|	4.6	|
7	6.7	0.2	7.1	0.3	8.4	0.4	8.9	0.3	6.0	|	7.7	|	3.8	|	8.6	0.3	7.4	0.2	8.5	|	5.5	|
8	7.6	0.2	8.1	0.3	9.8	0.4	10.3	0.4	7.0	|	8.9	|	4.4	|	9.9	0.4	8.6	0.2	9.9	0.8	6.4	|
9	8.5	0.3	9.1	0.4	11.2	0.4	11.8	0.5	8.0	|	10.2	|	5.1	|	11.4	0.4	9.9	0.3	11.3	0.7	7.3	|
10	9.4	0.4	10.2	0.4	12.6	0.4	13.2	0.4	9.0	|	11.4	0.4	5.7	0.1	12.8	0.2	11.1	0.4	12.6	0.7	8.2	0.7
11	10.3	0.1	11.2	0.1	14.0	0.1	14.7	0.1	10.0	0.1	12.7	0.1	6.3	0.1	14.2	0.1	12.3	0.1	14.0	0.1	9.0	0.1
12	10.4	0	11.3	0	14.2	0	14.8	0	13.0	0	12.8	0	8.3	0	15.2	0	12.5	0	14.2	0	10	0
Feature Type (riffle, run, or pool)	Pool DC		Pool DC		Pool		Pool		Riffle		Riffle		Riffle		Pool		Pool		Pool		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [signature] Date: 5/23/07

DC 5-24-07

WBID# 0674
Site# 14

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/23/07 13:10	Site Location Description (e.g., road crossing): US Apollo Bridge Crossing
Personnel (Data Collectors): DC + CB	
Current Weather Conditions: Hot, windy	Facility Name: Green City WWTP
	Permit Number: MO 0112135
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0514537 Y: 4416566

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode	X	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 97.5 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
0674_14_12	US View from US Transect		
0674_14_13	US View from DS Transect		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☑ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 0674
Site# 14

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: None					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☑ Yes ☐ No

If so, is there an obvious current? ☑ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
	5	90	5		

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

minimal periphyton growth on logs <5%

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☑ None	☐ Other:
COLOR:	☑ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other: silt
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☑ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: _____ Date of Survey: 5/23/07

Organization: MEC Water Resources, Inc. Position: Res. Tech

RWC 5-24-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0674 Site #: ~~14~~ DC 0674_14
(WBID_Site#)

Estimated Channel Incision: 1.8 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
UTM X: 4416566 DC UTM Y: 0514537

Horizontal Accuracy Estimate (GPS Data Quality): +/- 97.5 (feet)

Average Stream Width: 15 (meters) Length of Survey Segment: 300 (meters)
(20x average stream width)

Field Staff: David Cavani + Chad Backes

Dissolved Oxygen

Date: 5/23/07 Time: 13:40

Dissolved Oxygen: 8.62 (mg/L)

Dissolved Oxygen: 103.1 (% sat)

Specific Cond: 429 (µS/cm)

Water Temperature: 23.6 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.1	0.1	5.2	0.1	0.1	0.1	0.2	0.1	0.2	0	0.2	0.1	0.5	0.1	1.4	0.1	0.6	0.1	0.2	0.1	0.2	0.1
2	1.0	0.2	5.9	|	1.1	0.1	1.2	0.2	1.2	0.2	1.1	0.2	1.2	0.1	2.2	0.2	1.5	0.1	1.10	0.1	1.0	0.3
3	2.0	0.1	6.7	|	2.1	0.1	2.3	<0.1	2.2	<0.1	2.0	<0.1	1.9	0.2	3.0	0.2	2.3	0.1	2.1	0.2	1.8	0.2
4	2.9	0.1	7.4	|	3.0	0.2	3.3	<0.1	3.2	<0.1	2.9	<0.1	2.7	0.1	3.8	0.3	3.2	0.2	3.0	0.1	2.6	0.2
5	3.9	0.2	8.2	|	4.0	0.2	4.4	<0.1	4.2	0.1	3.8	0.1	3.4	0.1	4.6	0.2	4.1	0.2	4.0	0.1	3.4	0.2
6	4.8	0.2	8.9	|	5.0	0.1	5.4	0.1	5.2	0.2	4.7	<0.1	4.1	0.1	5.4	0.2	5.0	0.3	4.9	0.1	4.3	0.2
7	5.7	0.1	9.6	|	6.0	0.2	6.4	0.1	6.2	0.1	5.6	0.1	4.8	0.1	6.1	0.2	5.8	0.1	5.8	0.1	5.1	0.1
8	6.7	<0.1	10.4	|	7.0	0.2	7.5	0.1	7.2	0.2	6.5	0.1	5.5	0.2	6.9	0.1	6.7	0.1	6.8	0.1	5.9	0.1
9	7.6	<0.1	11.1	|	8.0	0.1	8.5	0.1	8.2	0.1	7.4	0.2	6.3	0.2	7.7	0.1	7.6	0.1	7.7	0.2	6.7	0.1
10	8.6	<0.1	11.9	|	8.9	0.1	9.6	0.1	9.2	0.2	8.3	0.2	7.0	0.2	8.5	0.1	8.4	0.3	8.7	0.2	7.5	0.1
11	9.5	0.1	12.6	0.1	9.9	0.1	10.6	0.1	10.2	0.1	9.2	0.1	7.7	0.1	9.3	0.1	9.3	0.1	9.6	0.1	8.3	0.1
12	11.1	0	12.9	0	10.0	0	15.6	0	10.5	0	10.9	0	8.0	0	9.4	0	9.4	0	9.9	0	8.5	0
Feature Type (riffle, run, or pool)	Riffle		Riffle		Riffle		Riffle		Run		Riffle		Run		~~Riffle~~ DC Run		Run		Run		~~Run~~ DC Riffle	

Reverse 1 & 11

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [signature] Date: 5/23/07
AWC 5-24-07

WBID# 0674
Site# 15

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/23/07 12:45	Site Location Description (e.g., road crossing): DS Apollo Bridge
Personnel (Data Collectors): DC/CB	Facility Name: Green City WWTP
Current Weather Conditions: clear, windy	Permit Number: MO 0112135
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0514408 Y: 4416362

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode	X	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 40.7 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
0674_15_10	DS view from Transect 1		
0674_15_11	US view from T11		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☑ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☑ Steep slopes	☐ None of the above	☐ Other:

Comments: AP

WBID# 0674
Site# 15

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: None					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☒ Yes ☐ No

If so, is there an obvious current? ☒ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	95 % Sand	5 % Silt	% Mud/Clay	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

minimal periphyton <5%

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other: 5% Algae
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: _____ Date of Survey: 5/23/07

Organization: MEC Water Resources, Inc. Position: Res. Tech.

QWC 5-24-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0674 Site #: DC 0674-15 (WBID_Site#)

Estimated Channel Incision: 1.9 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 441636 UTM Y: 5144108

Horizontal Accuracy Estimate (GPS Data Quality): +/- 40.7 (feet)

Average Stream Width: 14.5 (meters) Length of Survey Segment: 290 (meters) (20x average stream width)

Field Staff: DC / CB

Dissolved Oxygen

Date: 5/23/07 Time: 12:45

Dissolved Oxygen: 8.65 (mg/L)

Dissolved Oxygen: 102.3 (% sat)

Specific Cond: 429 (µS/cm)

Water Temperature: 23.6 (°C)

Transect Cross-Section

Measurement	01 Distance (m)	01 Depth (m)	02 Distance (m)	02 Depth (m)	03 Distance (m)	03 Depth (m)	04 Distance (m)	04 Depth (m)	05 Distance (m)	05 Depth (m)	06 Distance (m)	06 Depth (m)	07 Distance (m)	07 Depth (m)	08 Distance (m)	08 Depth (m)	09 Distance (m)	09 Depth (m)	10 Distance (m)	10 Depth (m)	11 Distance (m)	11 Depth (m)
1	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	<0.1
2	1.7	0.2	1.8	0.1	1.6	0.5	1.7	0.5	1.5	0.6	1.5	>1.0	1.6	>1.0	1.7	0.4	1.6	0.2	1.4	0.2	0.9	
3	3.4	0.3	3.3	0.4	3.1	0.4	3.2	0.3	2.9	0.5	2.9	>1.0	3.1		3.3	0.4	3.1	0.2	2.7	0.3	1.7	
4	5.0	0.2	4.9	0.5	4.6	0.8	4.8	0.2	4.3	0.4	4.2	>1.0	4.5		4.8	0.5	4.7	0.3	3.9	0.4	2.4	
5	6.7	0.1	6.5	0.6	6.1	0.6	6.3	0.1	5.7	0.2	5.6	>1.0	6.0		6.4	0.8	6.2	0.4	5.2	0.8	3.2	
6	8.3	0.1	8.1	0.6	7.6	0.5	7.8	0.2	7.1	0.2	7.0	0.7	7.5		8.0	0.8	7.7	0.3	6.5	>1.0	4.0	
7	9.9	0.1	9.6	0.7	9.1	0.5	9.4	0.3	8.5	0.2	8.4	0.6	9.0		9.6	>1.0	9.2	0.4	7.8	>1.0	4.8	
8	11.6	0.1	11.2	0.7	10.6	0.5	11.0	0.5	9.9	0.2	9.8	0.4	10.5		11.2		10.7	0.5	9.1	>1.0	5.6	
9	13.2	0.2	12.8	0.6	12.1	0.4	12.5	0.7	11.3	0.2	11.1	0.3	11.9		12.7		12.3	0.6	10.3	>1.0	6.3	
10	14.9	0.6	14.3	0.4	13.6	0.5	14.1	0.8	12.7	0.2	12.5	0.2	13.9		14.3		13.8	0.6	11.6	0.8	7.1	
11	16.5	0.2	14.9	0.1	15.1	0.1	15.6	0.1	14.1	0.1	13.9	0.1	14.9	0.1	15.9	0.1	15.3	0.1	12.9	0.1	7.9	<0.1
12	16.7	0	16.0	0	15.2	0	15.7	0	14.0	0	14.0	0	15.0	0	16.0	0	15.4	0	13.0	0	8.0	0
Feature Type (riffle, run, or pool)	Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Pool		Riffle	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Date: 5/23/07

BWC 5-24-07

WBID# 0674
Site# 16

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/23/07 ~~10:25~~ DC 11:25	Site Location Description (e.g., road crossing): US Arctic Rd
Personnel (Data Collectors): DC/CB	Facility Name: Green City WWTP
Current Weather Conditions: clear, windy	Permit Number: MO 0112135
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0514206 Y: 4413781

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode	X	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 36.2 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
0674_16_07	US from T1		
0674_16_08	DS View from T1		
0674_16_09	DS view from T1 - photo of bridge		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 0674
Site# 16

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: None					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☑ Yes ☐ No

If so, is there an obvious current? ☑ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
5		80			15

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Some periphyton on bedrocks < 10%

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☑ None	☐ Other:
COLOR:	☑ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☑ Fine sediments	☐ None	☐ Other: Sand and some silt
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☑ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: _____ Date of Survey: 5/23/07

Organization: MEC Water Resources, Inc. Position: Res. Tech

DWC 5-24-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0674 Site #: ~~16~~ DC 0674_16 (WBID_Site#)

Estimated Channel Incision: 1.5 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 441378 DC UTM Y: 0514206

Horizontal Accuracy Estimate (GPS Data Quality): +/- 36.2 (feet)

Average Stream Width: 13 (meters) Length of Survey Segment: 260 (meters) (20x average stream width)

Field Staff: DC/CB

Dissolved Oxygen

Date: 5/23/07 Time: 1225

Dissolved Oxygen: 9.70 (mg/L)

Dissolved Oxygen: 109.7 (% sat)

Specific Cond: 436 (µS/cm)

Water Temperature: 22.3 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.1	0	0.5	0.1	0.1	0.4	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	<0.1	0.1	0.1	0.1	0.1	0.7	0.1
2	1.6	>1.0	1.9	0.3	1.8	0.5	2.0	0.1	1.9	0.2	1.0	0.1	1.4	0.3	1.5		1.9	0.4	1.3	0.2	1.5	0.2
3	3.0	>1.0	3.4	0.1	3.6	0.6	3.8	0.7	3.6	0.2	1.9	0.1	2.6	0.2	2.9		2.6	0.4	2.5	0.2	2.3	0.2
4	4.5	>1.0	4.8	0.2	5.3	0.6	5.7	0.7	5.3	0.2	2.7	0.1	3.8	0.2	4.3		3.9	0.5	3.7	0.1	3.2	0.3
5	5.9	>1.0	6.3	0.3	7.0	0.7	7.5	0.8	7.0	0.2	3.5	0.1	5.0	0.2	5.7		5.2	0.3	4.9	0.2	4.0	0.4
6	7.4	>1.0	7.7	0.4	8.8	0.7	9.3	0.8	8.7	0.2	4.4	0.1	6.2	0.3	7.1		6.5	0.3	6.1	0.2	4.8	0.5
7	8.9	0.5	9.1	0.7	10.5	0.7	11.1	0.8	10.3	0.3	5.2	0.1	7.3	0.3	8.5		7.7	0.3	7.2	0.3	5.6	0.6
8	10.3	0.1	10.6	0.8	12.2	0.6	12.9	0.7	12.0	0.3	6.0	<0.1	8.5	0.2	9.9		9.0	0.3	8.4	0.2	6.4	0.6
9	11.8	<0.1	12.0	0.9	13.9	0.6	14.8	0.6	13.7	0.3	6.8	0.1	9.7	0.2	11.3		10.3	0.2	9.6	0.2	7.3	0.5
10	13.2	0.1	13.5	>1.0	15.7	0.7	16.6	0.6	15.4	0.3	7.7	0.1	10.9	0.2	12.7		11.5	0.2	10.8	0.2	8.1	0.3
11	14.7	0.1	14.9	0.6	17.4	0.4	18.4	0.3	17.1	0.1	8.5	0.1	12.1	0.1	14.1	<0.1	12.8	0.1	12.0	0.1	8.9	0.1
12	15	0	15	0	17.5	0	18.5	0	17.3	0	8.7	0	12.2	0	14.2	0	13.1	0	12.3	0	9.0	0
Feature Type (riffle, run, or pool)	Pool		Pool		Pool		Pool		Pool		Riffle		Run		Riffle		Run		Pool		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted-width distance and depth = 0m.

Signed: _____ Date: 5/23/07

RWC 5-24-07

WBID# 0674
Site# 17

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/23/07 10:25	Site Location Description (e.g., road crossing): DS from Azure Rd
Personnel (Data Collectors): DL/EB	
Current Weather Conditions: clear 75	Facility Name: Green City WWTP
	Permit Number: MO 0112135
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0513862 Y: 4413380

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode	☑	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 75 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
0674-17-05	US from Transect 1		
0674-17-06	DS from Transect 4		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☑ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

WBID# 0674
Site# 17

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: None					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☑ Yes ☐ No

If so, is there an obvious current? ☑ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
		100			

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☑ None	☐ Other:
COLOR:	☑ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☑ Fine sediments	☐ None	☐ Other: Sand
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☑ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: _____ Date of Survey: 5/23/07

Organization: MEC Water Resources, Inc. Position: Res. Tech.

RHC 5-24-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0674 Site #: 0674-17 (WBID_Site#)

Estimated Channel Incision: 2 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 4413380 UTM Y: 3513862

Horizontal Accuracy Estimate (GPS Data Quality): +/- 75 (feet)

Average Stream Width: 15 (meters) Length of Survey Segment: 300 (meters) (20x average stream width)

Field Staff: David Carani, Chad Bach

Dissolved Oxygen

Date: 5/23/07 Time: 0925

Dissolved Oxygen: 8.69 (mg/L)

Dissolved Oxygen: 97.1 (% sat)

Specific Cond: 438 (µS/cm)

Water Temperature: 20.8 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.4	0.1	0.3	0.1	0.2	0.1	0.3	0.1	0.2	0.1	0.3	0.1	3.6	0.1	1.9	0.1	0.2	0.1	0.2	0.1	0.2	0.1
2	1.8	0.4	1.9	0.3	1.6	0.2	2.1	0.1	1.9	0.2	1.3	0.2	4.6	0.1	2.3	0.2	1.9	0.3	1.9	0.3	1.8	<0.1
3	3.1	0.5	3.4	0.3	2.9	0.2	3.9	0.2	3.5	<0.1	2.2	0.3	5.5	0.1	3.1	0.2	3.5	0.1	3.5	0.3	3.5	<0.1
4	4.5	0.6	5.0	0.4	4.3	0.2	5.7	0.2	5.2	<0.1	3.2	0.3	6.5	0.1	4.0	0.2	5.2	0.1	5.2	0.1	5.1	<0.1
5	5.8	0.6	6.5	0.3	5.7	0.2	7.5	0.2	6.9	<0.1	4.2	0.2	7.5	0.1	4.8	0.2	6.8	0.1	6.9	0.1	6.7	<0.1
6	7.2	0.6	8.1	0.2	7.1	0.2	9.4	<0.1	8.6	<0.1	5.2	0.2	8.5	0.2	5.6	0.3	8.5	0.1	8.6	0.1	8.4	0.1
7	8.6	0.7	9.6	0.2	8.4	0.2	11.2	<0.1	10.2	0.1	6.1	0.1	9.4	0.1	6.4	0.3	10.1	0.1	10.2	0.1	10.0	0.1
8	9.9	0.6	11.2	0.2	9.8	0.2	13.0	<0.1	11.9	0.1	7.1	0.1	10.4	0.1	7.2	0.3	11.8	0.1	11.9	0.1	11.6	0.2
9	11.3	0.5	12.7	0.2	11.2	0.1	14.8	<0.1	13.6	0.1	8.1	0.1	11.4	0.2	8.1	0.3	13.4	0.1	13.6	0.2	13.2	0.2
10	12.6	0.8	14.3	0.2	12.5	0.2	16.6	0.1	15.2	0.1	9.0	0.1	12.3	0.4	8.9	0.3	15.1	0.1	15.2	0.1	14.9	0.2
11	14.0	0.1	15.6	0.1	13.9	0.1	18.4	0.1	16.9	0.2 OC	10.8	0.1	13.3	0.3	9.7	0.1	16.7	0.1	16.9	0.1	16.5	0.1
12	14.1	0	16.2	0	16.4	0	18.8		17	0	10.5	0	13.4	0	9.8	0	16.9	0	18.5	0	16.7	0
Feature Type (riffle run, or pool)	Pool		Pool		Pool		Riffle		Riffle		Pool		Pool		Pool		Pool		Pool		Riffle	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 12 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: _____ Date: 5/23/07

DMC 5-24-07

WBID# 0674
Site# 18

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/23/07	Site Location Description (e.g., road crossing): Archer St. Road Crossing
Personnel (Data Collectors): DC/CB	
Current Weather Conditions: clear 75°	Facility Name: Green City
	Permit Number: MO 011 2135
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 0514118 Y: 4409826

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode	☒	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

	GPS Data Quality	Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 72.5 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
0674-18-01	US, footprints on sandbar		
0674-18-02	Looking US from US transect		
0674-18-03	Looking US from transect C		
0674-18-04	Looking DS (toward bridge) from DS transect		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.) footprints on 2 sandbars in assessment reach - see photo 1

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments: - very deep holes directly under bridge, some deep holes not sampled by transects

WBID# 0674
Site# 14

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

☐ Roads	☐ Rope swings	☒ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:
Comments: see previous comments					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☒ Yes ☐ No

If so, is there an obvious current? ☒ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	100 % Sand	% Silt	% Mud/Clay	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

minimal, some periphyton <5%

Water Characteristics*: (Mark all that apply.)

ODOR:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
COLOR:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
BOTTOM DEPOSIT:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other: Sand
WATER SURFACE DEPOSITION:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: _____ Date of Survey: 5/23/07

Organization: MEC Water Resources, Inc. Position: Res. Tech.

MNC 5-24-07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0674 Site #: 0674-18 (WBID_Site#)

Estimated Channel Incision: 1.4 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0514118 UTM Y: 4409826

Horizontal Accuracy Estimate (GPS Data Quality): +/- 77.5 (feet)

Average Stream Width: 12 (meters) Length of Survey Segment: 240 (meters) (20x average stream width)

Field Staff: DC/CB

Dissolved Oxygen

Date: 5/23/07 Time: 09:00

Dissolved Oxygen: 7.60 (mg/L)

Dissolved Oxygen: 82.9 (% sat)

Specific Cond: 433 (µS/cm)

Water Temperature: 20.2 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.1	2.0	0.1	0.5	0.1	0.2	0.1	0.1	0.1	0.5	0.1	0.2	0.1	0.5	0.1
2	2.1	>1.0	2.0	>1.0	1.2	0.4	0.8	0.4	3.4	0.4	1.6	0.2	0.8	>1.0	1.2	0.6	1.3	0.3	1.0	0.3	2.2	0.4
3	3.8	|	3.9	|	2.3	0.3	1.3	0.6	4.7	0.4	2.7	0.3	1.4	|	2.3	0.5	2.0	0.5	1.9	0.4	3.8	0.4
4	5.6	|	5.8	|	3.3	0.4	1.9	0.7	6.1	0.3	3.8	0.4	1.9	|	3.3	0.3	2.8	0.7	2.7	0.4	5.5	0.3
5	7.3	|	7.7	|	4.4	0.2	2.4	0.7	7.5	0.2	4.9	0.5	2.5	|	4.4	0.3	3.6	0.6	3.5	0.4	7.1	0.4
6	9.1	|	9.6	|	5.5	0.2	3.0	0.6	8.9	0.2	6.0	0.5	3.1	|	5.5	0.4	4.4	0.6	4.4	0.4	8.8	0.4
7	10.9	|	11.5	—	6.6	0.2	3.6	0.5	10.2	<0.1	7.1	0.5	3.7	|	6.6	0.5	5.1	0.5	5.2	0.3	10.5	0.3
8	12.6	|	13.4	0.1	7.7	0.3	4.1	0.5	11.6	0.3	8.2	0.4	4.3	|	7.7	0.5	5.9	0.4	6.0	0.3	12.1	0.2
9	14.4	|	15.3	0.2	8.7	0.4	4.7	0.3	13.0	0.3	9.3	0.3	4.8	|	8.7	0.4	6.7	0.4	6.8	0.3	13.8	20.1
10	16.1	/	17.2	>1.0	9.8	0.3	5.2	0.2	14.3	0.3	10.4	0.3	5.4	+	9.8	0.3	7.4	0.2	7.7	0.3	15.4	0.2
11	17.9	0.1	19.1	0.1	10.9	0.1	5.8	0.1	15.7	0.1	11.5	0.1	6.0	0.1	10.9	0.1	8.2	0.1	8.5	0.1	17.1	0.1
12	18	0	19.2	0	11	0	6.0	0	16.0	0	12.0	0	6.3	0	11.4	0	8.4	0	10.0	0	17.5	0
Feature Type (riffle run, or pool)	Pool		Pool		Run		Pool		Run		Pool		Pool		Pool		Pool		Run		Run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [signature] Date: 5/23/07

QAC 5-24-07

WBID# 0674

Site# 1 Photo ID# 674-1-1032, Upstream

Site# 1 Photo ID# 674-1-1033, Downstream

Site# 1 Photo ID# 674-1-1034, Slope

Site# 1 Photo ID# 674-1-1035, Bridge

WBID# 0674

Site# 1 Photo ID# 674-1-1036, PWSD flags

Site# 1 Photo ID# 674-1-1037, Fence

Site# 2 Photo ID# 674-2-1038, Upstream

Site# 2 Photo ID# 674-2-1039, Downstream

WBID# 0674

Site# 2 Photo ID# 674-2-1040, Bridge

Site# 2 Photo ID# 674-2-1041, Slope

Site# 3 Photo ID# 674-3-1043, Upstream

Site# 3 Photo ID# 674-3-1044, Downstream

WBID# 0674

Site# 3 Photo ID# 674-3-1045, Bridge

Site# 3 Photo ID# 674-3-1046, Slope

Site# 4 Photo ID# 674-4-1047, Upstream

Site# 4 Photo ID# 674-4-1048, Downstream

WBID# 0674

Site# 4 Photo ID# 674-4-1049, Bridge

Site# 4 Photo ID# 674-4-1050, Slope

Site# 5 Photo ID# 674-5-1051, Upstream

Site# 5 Photo ID# 674-5-1052, Downstream

WBID# 0674

Site# 5 Photo ID# 674-5-1053, Slope

Site# 5 Photo ID# 674-5-1054, Bride, Windsor Rd

Site# 6 Photo ID# 674-6-1055, Upstream

Site# 6 Photo ID# 674-6-1056, Downstream

WBID# 0674

Site# 6 Photo ID# 674-6-1057, Bridge

Site# 6 Photo ID# 674-6-1058, Slope

Site# 7 Photo ID# 674-7-1059, Upstream

Site# 7 Photo ID# 674-7-1060, Downstream

WBID# 0674

Site# 7 Photo ID# 674-7-1061, Slope

Site# 7 Photo ID# 674-6-1062, Bridge

Site# 8 Photo ID# 674-8-1063, Upstream

Site# 8 Photo ID# 674-8-1064, Downstream

WBID# 0674

Site# 8 Photo ID# 674-8-1065, Slope

Site# 9 Photo ID# 674-9-1066, Upstream

Site# 9 Photo ID# 674-9-1067, Downstream

Site# 9 Photo ID# 674-9-1068, Slope

WBID# 0674

Site# 9 Photo ID# 674-9-1072, Bridge

Site# 10 Photo ID# 674-10-1069, Upstream

Site# 10 Photo ID# 674-10-1070, Downstream

Site# 10 Photo ID# 674-10-1071, Slope

WBID# 0674

Site# 10 Photo ID# 674-10-1072, Bridge

Site# 12 Photo ID# 674-12-16, Upstream

Site# 12 Photo ID# 674-12-17, Downstream

Site# 12 Photo ID# 674-12-18, Footprints

WBID# 0674

Site# 13 Photo ID# 674-13-14, Upstream

Site# 13 Photo ID# 674-13-15, Downstream

Site# 14 Photo ID# 674-14-12, Upstream

Site# 14 Photo ID# 674-14-13, Upstream

WBID# 0674

Site# 15 Photo ID# 674-15-10, Downstream

Site# 15 Photo ID# 674-15-11, Upstream

Site# 16 Photo ID# 674-16-07, Upstream

Site# 16 Photo ID# 674-16-08, Downstream

WBID# 0674

Site# 16 Photo ID# 674-16-07, Downstream

Site# 17 Photo ID# 674-17-05, Upstream

Site# 17 Photo ID# 674-17-06, Downstream

Site# 18 Photo ID# 674-18-01, Upstream / foot prints

WBID# 0674

Site# 18 Photo ID# 674-18-02, Upstream

Site# 18 Photo ID# 674-18-03, Upstream

Site# 18 Photo ID# 674-18-04, Downstream